

### Abstract of the Disclosure

An analytical apparatus to monitor fluid systems has at least one extraction module having a raw-sample reservoir connected by input fluid  
5 conduit to individual ones of said fluid systems, to extract raw samples for analysis from said fluid systems, one or more modification modules comprising additive materials to modify the extracted raw samples prior to analysis, an analytical device to receive at least a portion of said raw samples in an ordered sequence, and to determine concentration of at least one  
10 constituent of said sample portion, fluid-handling apparatus for transferring fluid through the analytical apparatus, and a computerized control and management system to manage operations of component modules and devices, and to report analytical results. The apparatus is characterized in that the control and management system coordinates extraction of raw samples,  
15 modification as needed, introduction of fluids to the analytical device, and reporting of analytical results on a continuous basis over plural cycles.